

with exterior fringe; penial valve quite low.

Measurements (in mm.): Total length 14.5; eyes: length 3.02, lateral width 1.4, distances of upper, median and lower interspaces 3.02, 2.7 and 2.5; clypeus: median length 1.3, basal and apical widths 1.25 and 2.4; antennal sockets: distance to eye 0.51, to clypeus 0.8, to median ocellus and to each other 0.9 and 0.9; antennae: length of scape 1.0, pedicel 0.25, flagellar segments I_{st} 0.3, II_{nd} 0.35, VI_{th} 0.4, XI_{th} 0.6 and breadth of VI_{th} 0.3 and XI_{th} 0.4; lateral ocelli: distance to eye 0.55, to occipital margin 1.0 and to each other 0.7; labrum: median length 1.5, basal and apical width 1.7 and 1.1; scutum: median length and maximum width 3.15 and 4.5; scutellum: median length of dorsal surface 1.1; fore wing: total length 9.0 and length of radial cell 2.25; relative median widths of terga I_{st} to VI_{th}: 2.7, 4.5, 4.55, 4.5, 3.7 and 3.0.

FEMALE: Not known.

Material examined: Holotype: male, Gandhi Memorial Park, Madras (Tamil Nadu), 8 July 1981, Coll. Rajiv K. Gupta (N.P.C., Division of Entomology, I.A.R.I., New Delhi); no paratype.

Flower record: *Callistomum* sp.

The new species described above is closely related to *Megachile ceylonica* Bingham, 1897 (reported from Ceylon and Tenasserim, I have also trapped it at Madurai, Tamil Nadu). *M. ceylonica* also falls under subgenus *Chrysosarus* s. str. of genus *Chrysosarus* (diagnosis: wings pale-yellow with testaceous veins, tegulae testaceous, margin of hypostome not at all produced below the mandibles). Hence a new combination is suggested. Besides the subgeneric characters, *ceylonica* further differs from *tamiliensis* in its tetradentate mandible, VI_{th} tergal carina margin without serration on either sides of median incurve; apices of gono-coxites not trilobed and overall body pubescence golden-yellow.

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A NEW SPECIES OF *DASINEURA* (DIPTERA: CECIDOMYIIDAE) INJURIOUS TO BUDS OF *BRASSICA* SPP. (CRUCIFERAE) IN HARYANA¹

R.M. SHARMA² AND HARVIR SINGH³
(With thirteen text-figures)

A new species of cecidomyiid fly, *Dasineura hisarensis* which breeds in the buds of *Brassica campestris* L. var. *toria*, *B. rapa* L. var. *glauca* and *B. juncea* (Linn.) Czern and Coss sub. sp. *juncea* Linn. at Hisar, Haryana state, has been described and illustrated. The available biological information on this species is also included.

INTRODUCTION

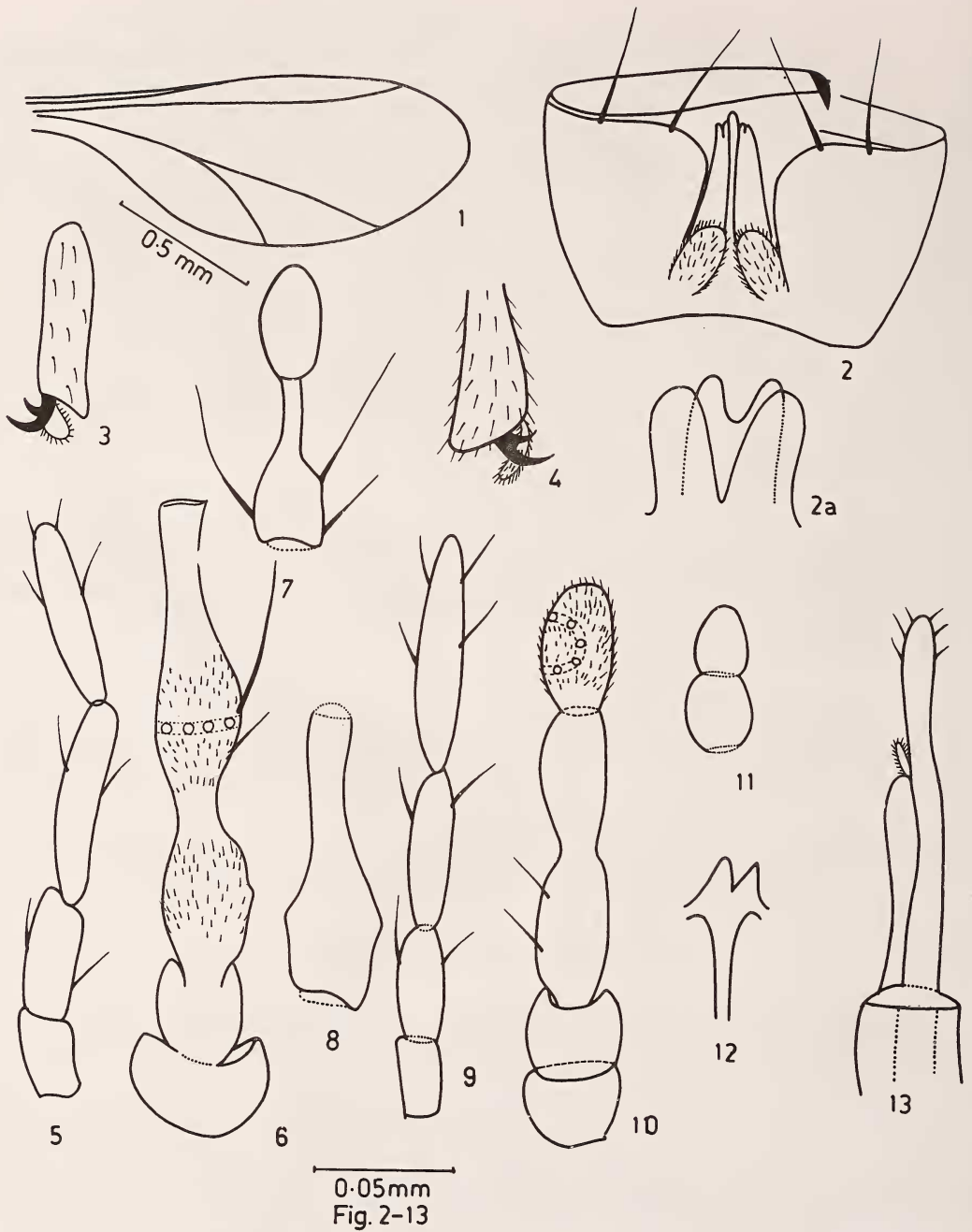
In the year 1988, a large number of cecidomyiid flies were bred by one of us (HS) from

the buds of *Brassica campestris* L. var. *toria*, *B. rapa* L. var. *glauca* and *B. juncea* (L.) sub. sp. *juncea* Linn. at Haryana Agricultural University, Hisar. On closer examination all these flies were determined as assignable to a new species under the genus *Dasineura* Rondani. Until 1981, *Dasineura* Rondani, a genus of Phytophagous cecidomyiids was represented in India by six species (Grover 1981). Sharma (1987) added one more to the list and the present species is the eighth.

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²Zoological Survey of India, Western Regional Station, Pune 411 005.

³Department of Plant Breeding, Haryana Agricultural University, Hisar 125 004.

Figs. 1-13. *Dasineura hisarensis* sp. nov.

1. Wing (male); 2. Genitalia (dorsal view); 2a. Dorsal and subdorsal plates. 3. Claw (male); 4. Claw (female); 5. Palpus (male); 6. Scape, pedicel, third and fourth antennal segments (male); 7. Terminal two antennal segments (male); 8. Fifth antennal segment (male); 9. Palpus (female); 10. Scape, pedicel, third, fourth and fifth antennal segment (female); 11. Terminal two antennal segments (female); 12. Sternal spatula; 13. Ovipositor.

Dasineura hisarensis sp. nov. (Figs. 1-13)

MALE: Body 2.20 mm. long, light yellowish-brown. Eyes confluent above. Trophi normal. Palpus 4-segmented, pale brown, sparsely setose, moderately long, first segment (10 : 7)⁴ cylindrical, length 1.42 x its maximum thickness; second segment (20 : 10) cylindrical, length 2.00 x its maximum thickness; third segment (32 : 8) cylindrical, longer and thinner than second, length 4.00 x its maximum thickness; fourth segment (32 : 8) cylindrical as long as third and 4.00 x its maximum thickness.

Antenna: Shorter than body with 2 + 13 to 2 + 14 segments (2 + 14 in holotype), segments with cylindrical enlargements and long apical stems: enlargements with two whorls of setae, basal ones much shorter than apical; circumfila ring-like; scape (16 : 24) cup-shaped wider than long; pedicel (15 : 16) subglobose; third segment (33) confluent with and shorter than fourth, enlargement (20 : 15) 0.60 the length of the segment and 1.33 its maximum thickness, stem (10 : 6) 0.50 the length of the enlargement and 1.66 x its maximum thickness; fourth segment (47) with enlargement (24 : 11) a little more than half the length of the segment and 2.18 x its maximum thickness, stem (23 : 6) a little less than the length of the enlargement and slightly less than 4.00 x its maximum thickness; fifth segment (47) as long as fourth, enlargement (23 : 14) 0.48 the length of the segment and 1.64 x its maximum thickness, stem (24 : 6) a little more than the length of the enlargement and 4.00 x its maximum thickness, distal flagellar segments gradually becoming shorter and thinner; penultimate segment (26) with an enlargement (15 : 10) 0.57 the length of the segment and 1.50 x its maximum thickness, stem (11 : 3) 0.73 the length of the enlargement and 3.66 x its maximum thickness; terminal segment (18 : 9) conical, shortest of all, length twice its maximum thickness.

Wing: (51 : 22) hyaline, 2.36 x as long as broad, costa sparsely hairy, vein R_1 joining costa beyond 0.25 the length of the wing, vein R_5 reaching costa well before the wing apex, uninterrupted at its union with the latter, vein *Cu* forked.

Legs: Long, moderately hairy, metatarsus (6)

shorter than terminal tarsal segment, second segment (63) longest of all, longer than the following segments combined together (53); claw (7) dentate on all legs, evenly curved; empodium broad or elongated, longer than claw (11).

Genitalia: Light brown, sparsely setose, basal clasp segment (41 : 27) enlarged apically, narrowed basally with a heavily setose elongated basal lobe, length 1.51 x its maximum apical width, shorter than terminal clasp segment; later (48 : 6) slender, evenly narrowed, ending in a dark pointed tooth, length 8.00 x its maximum thickness; dorsal plate (25 : 25) as long as broad, deeply and broadly bifid, lobes broad, rounded apically, sparsely setose; subdorsal plate (20 : 11) shorter and narrower than dorsal plate, slightly less than twice its maximum width, broadly and deeply incised, lobes elongated, tips rounded, setose apically; parameres cylindrical, beset with fine setae laterally, bilobed apically, slightly shorter than aedeagus; later (25 : 2) rounded apically, as long as dorsal plate, length a little more than 12.00 x its maximum thickness.

FEMALE: Body 2.28 mm long (including ovipositor). Eyes and trophi as in male. **Palpus:** 4 segmented, first segment (9 : 7) squarish, 1.28 x as long as thick; second segment (18 : 9) cylindrical, twice as long as thick; third segment (25 : 7) cylindrical, wide apically, 1.38 x longer than second and 3.57 x as long as its maximum apical width; fourth segment (34 : 6) cylindrical, longest and thinnest of all, 1.36 x longer than third and 5.66 x as long as thick.

Antenna: 0.33 the length of the body, with 2 + 13 to 2 + 14, cylindrical, sessile segments (2 + 13 in allotype), segments with two whorls of long setae, circumfila low; scape (11 : 15) cup-shaped, pedicel (14 : 13) subglobose; third segment (25) confluent with and slightly longer than fourth, enlargement (22 : 11) 2.00 x its maximum thickness; fourth segment (22 : 10) slightly shorter than third, enlargement 2.20 x its maximum thickness; distal flagellar segments gradually becoming shorter, penultimate segment (11 : 9) 1.22 x as long as thick; terminal segment (11 : 9) conical, as long as penultimate, length 1.22 x its maximum basal width. Wing, legs and claw as in male.

Ovipositor: exerted, protractile, typical dasineurine, 0.33 the length of the body and shorter than abdomen, terminal lobe (25 : 6) elongate, length 4.16 x its maximum thickness, with a few

⁴Numbers in parentheses indicate length: breadth ratios, measured with an oculometer.

lateral long setae; ventral lobe very small, setulose.

Larva: whitish when young, turns pink as grow old. Sternal spatula present, distally incised by a V-shaped emargination forming two lobes: shaft weakly sclerotized.

Host Plants: *Brassica campestris* L. var. *toria*, *B. rapa* L. var. *glauca* and *B. juncea* (L.) Czern and Coss, subsp. *juncea* L. (Cruciferae).

Holotype male, allotype female and paratypes 5 males, 8 females dissected and mounted on slides, 4 larvae on slides, *Ex.* buds of *Brassica campestris* L. var. *toria* HAU, Hisar (Haryana), India 15 Nov. 1988. Harvir Singh Coll. All types are deposited in Z.S.I. Pune for the time being and will be deposited in National Zoological Collections, Z.S.I. Calcutta (Regd. Nos. WRS/ZSI/Ent 10/79 to Ent 10/97).

Distribution: INDIA: Haryana state (Hisar and other districts).

Etymology: The specific epithet *hisarensis* refers to the type locality, Hisar in Haryana state, India.

Dasineura brassicae (Winnertz) commonly called the Brassica Pod Midge is known as one of the most serious pests of rape, *Brassica napus* L., *B. rapa* L. and *B. campestris* L. in Europe (Ahman 1985). But the incidence of *Dasineura* on *Brassica* spp. from India constitutes the first report for major rapeseed growing Asian countries (*Nepal, Pakistan, Bangladesh and China*).

The females of *D. hisarensis* sp. nov. resemble the Palaearctic species *D. brassicae* (Winn.) but males differ in the genitalia (as communicated in the identification report of C.I.E. London). This new species comes close to *D. amaramanjarae* Grover (1965) and *D. psoraleae* Sharma (1987) among Indian species affecting inflorescence of *Mangifera indica* Linn. and *Psoralea corylifolia* Linn. respectively; but differs considerably from both the species in having different number, length and breadth proportions of antennal

segments; proportions of empodium and claw; shape of basal lobe of basal clasp segment; structure of dorsal and subdorsal plates and proportions of dorsal lamella of ovipositor.

The scant biological information available on the species is summarised. The female lay eggs in flower buds by inserting its ovipositor. At the site of oviposition, an eye-shaped spot is developed which gradually widens. This gall-midge does not form any complex gall. The infested buds inflate in size. Each bud may harbour 2-15 larvae inside. Such inflated buds fail to form pods, retain their normal colour till the larvae drop out for pupation in the soil. Later the infested buds die, turn black but remain attached to the plant till harvest. This species is multivoltine. Females outnumber the males (male 42 : 58 female). Drastic decline in field population occurs after the first week of March.

At present, we are uncertain of its economic status, largely because infestation of this species on *Brassica* plants was encountered only recently. However, based on the preliminary field observations by one of us (HS), pest incidence varied from 2-5% depending on the different agroclimatic zones of Haryana. The larvae of this species are parasitized by an unidentified chalcid. The extent of parasitization varies from 8.70 to 18.75% during December to March.

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